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SILICA GLASS DOPED WITH BISMUTH, ITS PRODUCTION, OPTICAL FIBER USING ITS GLASS, AND OPTICAL AMPLIFIER

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Abstract of JP11029334

PROBLEM TO BE SOLVED: To obtain an optical fiber capable of amplification in a lower disperse region by using a silica glass provided with uniformly dispersed zeolite materials therein each formed of unit cells whose central sites each doped with bismuth to be clustered. SOLUTION: This silica glass for the optical fiber is obtained by the following: forming a zeolite doped with bismuth by mixing a zeolite with an aqueous solution of bismuth nitrite, stirring the mixture at room temperatures for a predetermined time, and subjecting it to filtration and dehydration; adjusting an acidity of an aqueous solution of silicon alcoholate such as tetraethyl orthosilicate and mixing this solution with an aqueous solution containing silica particles obtained by mixing silicon alcoholate, ethanol, and ammonium in the ratio of 1:1 in terms of SiO2 ; blending this resultant mixture with an aqueous solution of the zeolite doped with bismuth adjusted to a predetermined concentration so as to form a gel; and subjecting the gel to dehydration, temporary bake, and burning, thus obtaining the silica glass with clustered bismuth in the central sites of the unit cells forming a zeolite material.

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